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DEPARTMENT OF AGRICULTURE  
OFFICE OF THE DAIRY AND COLD STORAGE COMMISSIONER

## NOTES ON THE COLD STORAGE OF EGGS

The satisfactory preservation of eggs in cold storage depends largely on the following factors: (1) sanitary condition of the storage room; (2) condition of the eggs as to freshness; (3) temperature; (4) humidity; (5) air circulation; (6) ventilation; (7) packing.

*Sanitary condition of the storage room.*—It is imperative that the room in which eggs are to be cold stored shall be thoroughly clean and free from all odours. If refrigerated with an air circulation system the circulation should not be connected with rooms in which other goods are stored. Careful cold storage men whitewash the whole interior of their egg rooms every year. There are many cold storage rooms that are wholly unsuitable for the storage of eggs.

*Condition of the eggs as to freshness.*—It is useless to expect an egg which is not clean and perfectly fresh to come out of cold storage in prime condition. It is of the greatest importance that eggs should be placed in cold storage as quickly as possible after they are laid. Every day's delay will affect the quality of the eggs as they come out of cold storage. An egg begins to deteriorate as soon as it is laid, the rate of deterioration depending largely on the temperature, but also on cleanliness and moisture. If the surface of an egg has once been wet, its keeping quality is impaired. Hence the importance of keeping the eggs dry, as cool as possible, and storing them with the least possible delay. For these reasons eggs stored during cool weather keep better than those gathered during summer months.

*Temperature.*—The most favourable storage temperature is 29 to 30 degrees, and should not exceed 32 degrees. Fresh eggs will not freeze until the temperature reaches 28 to 27 degrees. Eggs will keep longer without going stale or musty at 29 degrees than at higher temperatures. The white is stiffer at the lower temperature, holding the yolk in more perfect suspension. If eggs are held at 36 degrees or above for fairly long periods, the yolk has a tendency to rise and stick to the shell, causing "spots" or rotten eggs. Eggs put in cold storage should not be cooled too rapidly; when taken from storage sudden warming is also detrimental. Either rapid cooling or rapid warming thins the albumen.

*Humidity.*—In controlling humidity the object is to keep it high enough that the eggs will not shrink or evaporate too rapidly, and yet low enough that the growth of mould is not encouraged. For eggs held at 29 to 32 degrees a relative humidity of 80 per cent to 75 per cent is recommended, the higher humidity for the lower temperature. Care should be taken in removing eggs from cold storage to prevent the condensation of moisture on the surface of the eggs. The extent of condensation will depend on the difference between the temperature of the eggs and the surrounding atmosphere; also on the relative humidity of the atmosphere. A good plan is to place the eggs in a cool room for some hours after being removed from cold storage, if such room is available. When a sufficient time has elapsed for the temperature

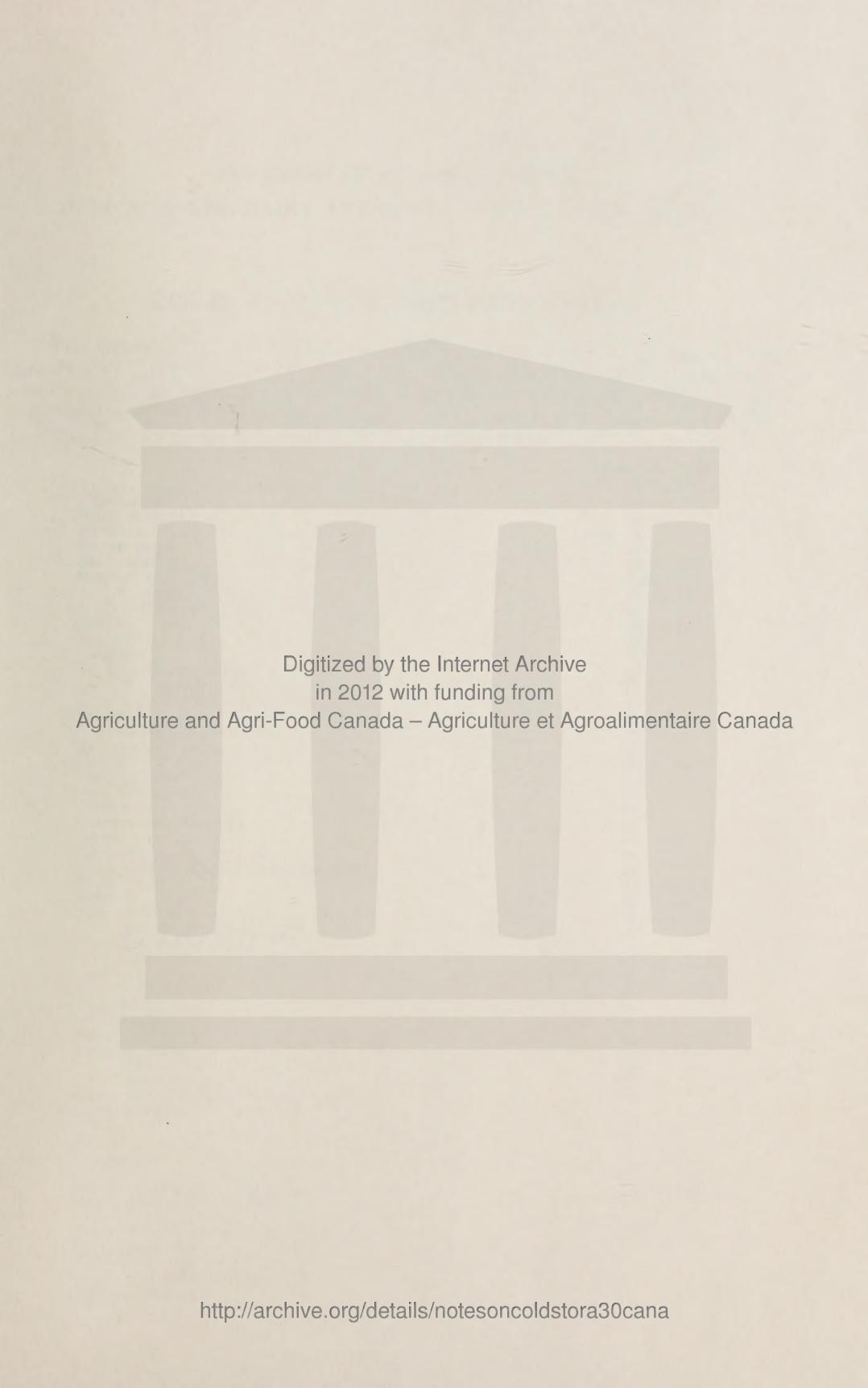
of the eggs to have risen to that of the surrounding air they can then be taken into a warmer atmosphere with less danger of condensation. Another plan is to remove the eggs several hours before shipment from the cold storage warehouse. Place them in a hallway or shipping room and cover closely with a tarpaulin, which will prevent the air from having access to the eggs. Much damage to the quality of eggs results from this condensation of moisture on the surface when cold eggs are exposed to a warm atmosphere.

*Air circulation.*—The circulation must be thorough and uniformly penetrate to all parts of the room. The efficiency of the circulation depends on how circulation is provided for in the construction and equipment. If circulation is not thorough, a uniform temperature cannot be maintained. Uniform temperature is very essential, as the temperature aimed at, viz., 29 to 31 degrees, is close to the freezing point. If circulation is faulty, part of the room may be cold enough to freeze the eggs, or, on the other hand, part of the room may be too warm. Dunnage strips, at least half an inch thick, should be placed between the tiers of cases as they are piled in the storage rooms. This will permit a free circulation of air between the cases.

*Ventilation.*—The introduction of a large volume of fresh air into rooms used for storing eggs is not necessary, as the volume of gas given off is not great. Fresh air in small volume should be admitted once or twice weekly. It should be pure and of proper humidity and temperature.

*Packing.*—Only clean cases, with new fillers, should be used for the packing of eggs intended for cold storage. If the cases are new, the wood *must* be thoroughly seasoned to avoid mould.

A strictly fresh egg cold stored under proper conditions may be expected to come out of cold storage showing practically no deterioration in quality, but eggs which have been held on the farm in a warm place, or which have remained ungathered in a damp or dirty nest for a week or more and then held for a further period in a warm back room of some country store before being sent to market, *are not strictly fresh*. Such eggs will come out of storage showing defects of quality in proportion to the length of time and the conditions under which they have been exposed. Cold storage eggs have suffered in reputation on this account, and it has become the habit to attribute any defect in the quality of an egg to cold storage. The fact is that defects appear in the eggs because of the lack of cold storage at the proper time more than for any other reason. Too much stress cannot be laid on the importance of prompt storage if the best results are to be obtained.



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